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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,189	07/14/2005	Shiro Kanegasaki	1752-0172PUS1	2696

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BIRCH STEWART KOLASCH & BIRCH  
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FALLS CHURCH, VA 22040-0747

EXAMINER
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EDWARDS, LYDIA E

ART UNIT	PAPER NUMBER
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1797

NOTIFICATION DATE	DELIVERY MODE
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12/01/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/542,189	<b>Applicant(s)</b> KANEGASAKI, SHIRO	
	<b>Examiner</b> LYDIA EDWARDS	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,7 and 17-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 26-47 is/are allowed.
- 6) ☒ Claim(s) 1-4,6,7 and 17-23 is/are rejected.
- 7) ☐ Claim(s) 24 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/11/2009</u> .   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Arguments***

Applicant's arguments with respect to claims 1-4, 6-7 and 18-47 have been considered and were persuasive. However, after further consideration a new ground(s) of rejection is presented.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 6-7 and 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kricka et al. (US 5744366) in view of Harrison et al. (WO 98/52691).

Regarding Claims 1, 4, 6, 17-20 and 23, Kricka et al. ('366) teaches an apparatus for detecting chemotaxis of cells which comprises: a cell-holding well having an opening for injecting cells [32]; a specimen-holding well having an opening for injecting a specimen [22]; a channel which connects said cell-holding well and specimen-holding well up with each other and has resistance to the passage of cells [20 and 24], and which detects chemotaxis of cells by observing a passage of cells in said channel from said cell-holding well to said specimen-holding well caused by a concentration gradient of said specimen formed in a stationary liquid in said channel; and a means of sealing said opening(s) in one or both of said cell-holding well and said specimen-holding well [30a and 30b] for preventing said liquid from an unexpected transportation thereof in said channel while detecting chemotaxis of cells (Col 3, lines 48-54; Col 11, line 5-Col 12, line 17; Figure 1).

Kricka et al. does not disclose a means of transporting said liquid from said cell-holding well to said specimen-holding well by an injection or an aspiration discharge of said liquid.

Harrison et al. ('691) discloses a microfluidic system that is used to study the effects of compounds on individual cells comprising: a cell-holding well having an opening for injecting cells [6]; a specimen-holding well having an opening for injecting a specimen [6']; a channel [2] which connects said cell-holding well and specimen-holding well up with each other and a means for transporting said liquid from said cell-holding well to said specimen-holding well by an injection or an aspiration discharge of said liquid and then stopping the transportation of said liquid after said injection or said aspiration discharge of said liquid in order to control a position of each cell in said cell-holding well; wherein said means of transporting said liquid and stopping the transportation thereof is connected to said cell-holding well and/or said specimen-holding well via an injection pipe (syringe) and/or an aspiration discharge pipe (syringe) (Page 15, line 16-Page 17, line 3).

It would have been obvious to one having skill in the art at the time the invention was made to modify Kricka with the transportation means of Harrison in order to allow for controlled mixing of the cells and the biological medium within the main flow path.

Regarding Claims 2 and 21, Kricka et al. ('366) teaches wherein said means of transporting a liquid and stopping the transportation thereof is a member selected from a syringe (Col 11, lines 22-27; Figure 1 [110]).

Harrison et al. ('691) also teaches wherein said means of transporting a liquid and stopping the transportation thereof is a member selected from a syringe or a syringe pump (Page 15, line 30-Page 16, line 1). Harrison also states that flow may be induced electricity or by a piezoelectric element.

It would have been obvious to one having skill in the art at the time the invention was made to modify Kricka with the transportation means of Harrison in order to allow for controlled mixing of the cells and the biological medium within the main flow path.

Regarding Claims 3, 7 and 22, Kricka et al. ('366) does not disclose a flexible stopper, slide-type switching member, a tap or a valve. However, he does disclose the use of a sealing tape or another type of sealant as a means of sealing the opening (Col 11, lines 53-60).

The examiner takes Official Notice of the equivalence of sealing means of the instant application and that of Kricka for their use in the sealing art and the selection of any of these known equivalents to seal an opening would be within the level of ordinary skill in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute one known means of sealing for another.

***Claim Objections***

Claims 24-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding Claim 24, prior art does not teach or suggest wherein said cell-holding well and said specimen-holding well are connected via an injection pipe joined to said cell- holding well, an aspiration discharge pipe joined to said specimen-holding well and said means of transporting a liquid and a stopper to stop the transportation thereof between said pipes, to form a structure in which said liquid is circulated.

Regarding Claim 25, prior art does not teach or suggest wherein said cell-holding well has an injection pipe while said specimen-holding well has an aspiration discharge pipe and a specimen injection port is sealed with a flexible stopper and wherein the injection pipe and said aspiration discharge pipe are connected by a means of transporting which circulates a liquid in a single direction.

***Allowable Subject Matter***

Claims 26-47 are allowed.

Regarding Claim 26, prior art does not teach or suggest wherein said cell-holding well and said specimen-holding well are connected via an injection pipe joined to said cell- holding well, an aspiration discharge pipe joined to said specimen-holding well and said means of transporting a liquid and a stopper to stop the transportation thereof between said pipes, to form a structure in which said liquid is circulated.

Regarding Claim 33, prior art does not teach or suggest wherein said cell-holding well has an injection pipe while said specimen-holding well has an aspiration discharge pipe and a specimen injection port is sealed with a flexible stopper and wherein the injection pipe and said aspiration discharge pipe are connected by a means of transporting which circulates a liquid in a single direction.

Regarding Claim 40, prior art does not teach or suggest wherein said cell-holding well having an opening for injecting cells and a specimen-holding well having an opening for

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injecting a specimen which are formed by a substrate having a raised bank in the middle thereof and a glass substrate and are divided into each other by said raised bank.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LYDIA EDWARDS whose telephone number is (571)270-3242. The examiner can normally be reached on Mon-Thur 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571.272.1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LYDIA EDWARDS/  
Examiner  
Art Unit 1797

LE

/Walter D. Griffin/  
Supervisory Patent Examiner, Art Unit 1797